



جامعة صنعاء
كلية الطب والعلوم الصحية
دفعة بصمة طبيب 31
طب بشري

Lecture No. 16

ophthalmology

VITREOUS

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vitreous

* anatomy:-

- vitreous body is an inert, transparent, a vascular, colorless gelatinous substance that fill the space of the eye between lens and Retina
- volume 4 mL (four fifth volume of eye ball)
- weight 4.0 gram
- refractive index 1.33.6

* Structure:-

99% water, salt, sugar, protein

collagen fibrils (responsible of shape)

hyaluronic acid (response of elasticity) المرنة

⇒ difference between vitreous and cornea?

⇒ water in cornea 77.5 while in vitreous 99%

* Parts of vitreous:-

1) Hyaloids layer or membrane:-

not true membrane, outer most surface layer of vitreous body divided into:

- Anterior hyaloid membrane

Start from point 1.5 mm from ora serrata, Attached to posterior lens.

- Posterior hyaloid membrane

extend back from vitreous base up to optic disc, it loosely Attached to the internal limiting membrane of Retina.

2) Cortical vitreous (cortex):-

- outer part of vitreous, 100 micron thick, contain densely packed collagen fibrils, protein, mucopolysaccharide metabolic centre of vitreous cells.

⇒ cortical cells:-

1) halocytes → synthesis of hyaluronic acid act as phagocytes

2) Fibrocytes

3) glial cell.

(2)

3) medullary vitreous:-

- structure similar cortical vitreous except that it has less fibrillar collagen structure and doesn't contain haocytes.
- contain Cloquet's canal & centre of medullary.

* Attachment of vitreous:-

- 1) vitreous base → strong attachment, 1mm wide, extending across ora serrata
- 2) Back of crystalline lens → ligament of Wieger
- 3) around margin of optic disc → Weiss ring
- 4) foveal region
- 5) Retinal vessels.

* Disease of vitreous:-

1) Persistent hyperplastic Primary vitreous (PHPV)

- pathological disorder of vitreous caused by failure of regression of primary vitreous.
- primary affect (mesenchymal cell, lens, optic disc, optic nerve)
- divided into:-

1) anterior PHPV → clinical picture (white pupil, microphthalmus, cataract, secondary closed angle glaucoma)

→ treat → lensectomy and remove retrolental membrane

2) posterior PHPV →

- white dense opaque membrane extend from optic disc to more peripheral retina and retrolental region

- associated with → Retinal detachment, retinal dysplasia choroidal (hypopigmentation, hyperpigmentation)

- Diagnose by → clinical picture - ultrasound

→ treatment → treat RD

(5)

* vitreous Liquefaction :-

- most common degenerative change in vitreous
- Appearance of coarse Aggregate material which moves freely in free vitreous
- associated with collapse (syneresis) and opacities in vitreous black floaters in front of eye.

* vitreous hemorrhage :- < may be anterior, posterior, superior >

- extravasation of blood into vitreous body and its Adjacent structures.
- usually occur from Retinal vessels - may present as pre Retinal < sub-hyaloid > between Retina and vitreous, or intergel hemorrhage < vitreous cell >.

⇒ Causes :-

- 1- Diabetic Retinopathy
- 2- Retinal tear
- 3- posterior vitreous detachment with vascular Retinal tear
- 4- Rhegmatogenous Retinal detachment
- 5- Retinopathy cell sickle Proliferative.
- 6- Age related macular degeneration
- 7- trauma.

⇒ clinical Features :-

- 1- Small if Floaters of development Sudden hemorrhage
- 2- Painless loss of vision
- 3- massive hemorrhage.

⇒ Signs :-

- Direct ophthalmoscopy reveals black shadow against the red glow in small hemorrhage and no Red glow in large hemorrhage.

⇒ treatment :-

- Small hemorrhage absorbed but in recurrent hemorrhage retinitis proliferans may develop.
- 1- Photocoagulation in case of diabetic Retinopathy
- 2- vitrectomy.

* detachment of vitreous Posterior * (Separation outer surface of corneal)

- Posterior in hole developing liquefaction senile with eyes in occurs membrane hyaloid
- myopes and aphakics common more eye to trauma.

⇒ complications:-

- 1) breaks Retinal
- 2) hemorrhage vitreous
- 3) hemorrhage Retina

⇒ treatment:-

Photocoagulation or cryotherapy of tear.

* Opacities may appear in the form of black dots lives or cobwebs may present when many vision of haziness

⇒ sign ⇒ may be seen as black opacities

Independently of movement with distant direct of ophthalmoscopy.

⇒ treatment ⇒:-

- 1- treat underlying causes
- 2- vitrectomy.

* Synerchysis scintillans *

- 1- Small white angular and crystalline bodies formed of cholesterol
- 2- Trauma/vitreous hemorrhage or inflammatory disease
- 3- Crystals sink in the bottom and stirred up with every movement
- 4- Beautiful shower of golden rain «on ophthalmoscopy»
- 5- Symptomless, untreatable.

* Asteroid hyalosis *

- 1- Small white rounded bodies suspended in vitreous gel.
- 2- Formed due accumulation of calcium containing lipid
- 3- unilateral / Asymptomatic condition usually seen in old patient with healthy vitreous.